

REMARKS

Applicants thank the Examiner in charge of this case for the interview granted to applicants' representative, Dr. Paul Fenster. This paper *inter alia* summarizes the substance of the interview.

The application now contains claims 29-47 and 59-65. Claims 29 and 41 have been amended and claims 59-65 have been added.

Applicants' representative has carefully considered the objections of the Examiner to the claims and believes that the claims clearly distinguish from the prior art. Since only prior art rejections have been made against the claims, it is not believed that any substantive amendments are necessary. However, claim 29 has been amended to add a final clause which completes the claim, by adding the act of actually generating the three dimensional emission values from the acquired data. Claim 41 has been amended to make explicit the relationship between the emission and transmission data. This relationship is believed to be implicit in the claim as originally filed. Claim 59 has been added to add an additional act after the acts already specified in claim 41. Claims 60-64 have been added to further limit claim 30 with the same limitations that are present in claims 31-34. These limitations were present in the IPER claims in multiple dependent form.

Claim 65 is the same as claim 41 before the present amendment.

In the response to Office Action filed on May 28, 2004, applicants submitted that there was no *prima facie* case of unpatentability of the present claims in view of Morgan, since the Morgan reference defined the order of taking of the images as first CT and then nuclear imaging. Since, in Morgan, the CT image is taken prior to the nuclear image and since in Morgan there is no teaching of any determination of the extent of the radioactive region, other than in the nuclear image, there is no way that Morgan could carry out the invention of claim 29.

Applicants supplement that reason by another reason why claim 29 is not *prima facie* obvious in view of Morgan. In claim 29 the transmission data must be acquired over a second axially extending portion of the body *responsive to the determined extent*. Even were Morgan to teach acquiring the nuclear image first (which it does not) there is no teaching in Morgan of acquiring the transmission (CT, in Morgan) data over an axial extent based on the extent of the radiation. While it would then be possible to do so, the present claim 29 is a method claim and the ability to perform the method does not make the method obvious.

Applicants note that the dependent claim not only further distinguish over the art, but also define further possible limitations on claim 29 that were discussed.

In particular, claim 30, defines that the second axially extending portion is smaller than the first axially extending portion. This limitation is *prima facie* unobvious in view of Morgan. Morgan neither teaches this limitation nor provides any teaching that would make it obvious.

Claims 31 and 60 define the extent as being determined from a planar nuclear emission image. No such image is generated in Morgan. This limitation is *prima facie* unobvious in view of Morgan. Morgan neither teaches this limitation nor provides any teaching that would make it obvious.

Claim 32 and 61 define the extent as being determined from the acquired nuclear emission data. Since the emission data is acquired after the transmission data in Morgan, this limitation is not *prima facie* obvious in view of Morgan.

Claims 34, 36, 38, 40 and 62 define the transmission data as being determined using a gamma ray source. In Morgan, the transmission data is acquired from an X-Ray source. No *prima facie* case of unpatentability has been made out.

Independent claim 41 is also not *prima facie* obvious for similar reasons as claim 29. Morgan *cannot* perform the invention, due to the order of the data acquisition in Morgan. In addition Morgan has no teaching of limiting the extent of the radiation image responsive to the determined extent of the organ and making the length of the acquisition of the transmission data shorter than that of the emission data.

Claim 42 is not *prima facie* obvious in view of Morgan since claim 42 claims that determining an extent comprises acquiring a planar x-ray image. This limitation is *prima facie* unobvious in view of Morgan. Morgan neither teaches this limitation nor provides any teaching that would make it obvious.

Claim 44 is not *prima facie* obvious in view of Morgan since claim 44 claims that determining an extent comprises acquiring a planar transmission Gamma ray image. Claim 45 is similarly not *prima facie* obvious since according to claim 45, the transmission data is acquired using a gamma ray source. Claim 46 is similarly not *prima facie* obvious in view of Morgan since claim 46 requires that determining an extent comprises acquiring a planar nuclear emission image. These limitations are *prima facie* unobvious in view of Morgan. Morgan neither teaches these limitations nor provides any teaching that would make any of them obvious.

Claims 47 and 62 claim that determining an extent comprises determining said extent from said acquired nuclear emission data. Since in Morgan the CT image is acquired first, this

limitation is *prima facie* unobvious in view of Morgan. Morgan neither teaches this limitation nor provides any teaching that would make it obvious.

Unamended claims 29 and 41 have been retained as new claims 64 and 65. Applicants submit that the amendments in claims 29 and 41 are not necessary for patentability over the prior art and that no other rejections have been made against claims 29 and 41. Thus, claims 64 and 65 are patentable over the present rejections. Applicants submit that rejection of claims 64 and 65 for reasons other than its unpatentability over Morgan could not be made in a final rejection.

At the interview, the Examiner pointed to a reference in Morgan at col. 1, line 64-col. 2, line 11 as teaching the reverse order of imaging. Applicants disagree. This section of the Morgan patent only refers to the '877 patent as teaching a combined apparatus for both CT and nuclear medicine imaging. It says that this is wasteful. However, there is no mention of the order of the imaging performed on this device and no mention of the length of the CT image being limited by a determined extent of either the radiation or the organ being imaged.

At the interview, the Examiner did not have a copy of the '877 patent. Applicants have since acquired a copy of the '877 patent and it does not provide a *prima facie* case of obviousness of the present claims either with or without Morgan.


Firstly, the '877 patent teaches taking the CT image first (col. 3, lines 52-53). In addition it teaches that the images are acquired "almost simultaneously." (Abstract and col. 4, lines 26-29) and "more or less simultaneously" (col. 2, lines 43-44) Secondly, it does not teach using the CT image to correct the nuclear medicine image. It does define convolving the two images, which is not clearly defined in the disclosure. It appears to be purely a display system for displaying the NM and CT images together and separately. Most important, it does not say anything about limiting the extent of the transmission image based on the NM image. In fact, since the images are acquired "almost simultaneously", this would not be possible.

In view of the above amendments and remarks, applicants submit that the claims are patentable and that the application is in order for allowance. Notice to that effect is respectfully solicited.

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